



# Coursera Capstone Project

## The Battle of Neighbourhoods

# The City of Toronto

- ❖ Toronto is a city with a population of approximately 2,731,571 and it is the provincial capital of Ontario, Canada. It is a multi-cultural city is ethnically diverse.
- ❖ This analysis aims to provide tips and guidelines for tourist who are visiting the city. We will look into the crime rate, the neighbourhoods and the most frequented locations.
- ❖ It is known that there are many websites and apps that give advice to travellers however, they rarely mention about the crime rates and the safety of the location. Hence it is clear that there is a need to look into this area of safety.
- ❖ I have been a tourist in many countries and have struggled to find out how dangerous it is to go to certain tourist locations.



# Data and Methodology

- We will scrap the data from the table on Wikipedia which contains the neighbourhood details, borough and postal codes.
- The geocoder API will be utilized to extract the data and obtain the coordinates of Toronto and the neighbourhoods. This will create the main dataframe to be used.
- The foursquare location API will be utilized to obtain the details of the venue and specific information about the neighbourhoods. This will enable us to parse and process the data to construct a formatted table to display the results containing the information retrieved.

**Data of the neighbourhoods in Toronto will be extracted from:**

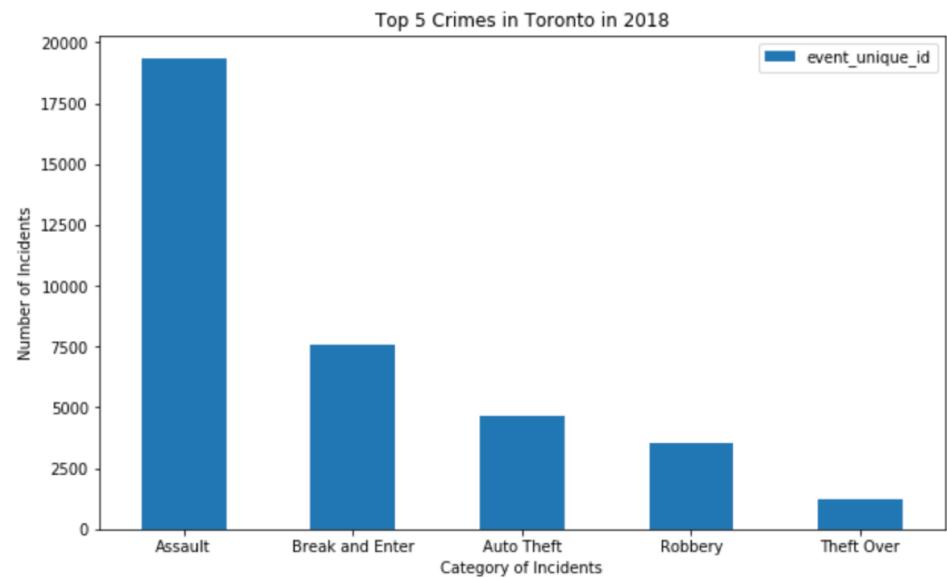
[https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)

**Data of incidents/crimes that occurred in Toronto:**

<http://data.torontopolice.on.ca/datasets?q=crime>

# Crime Incidents in Toronto

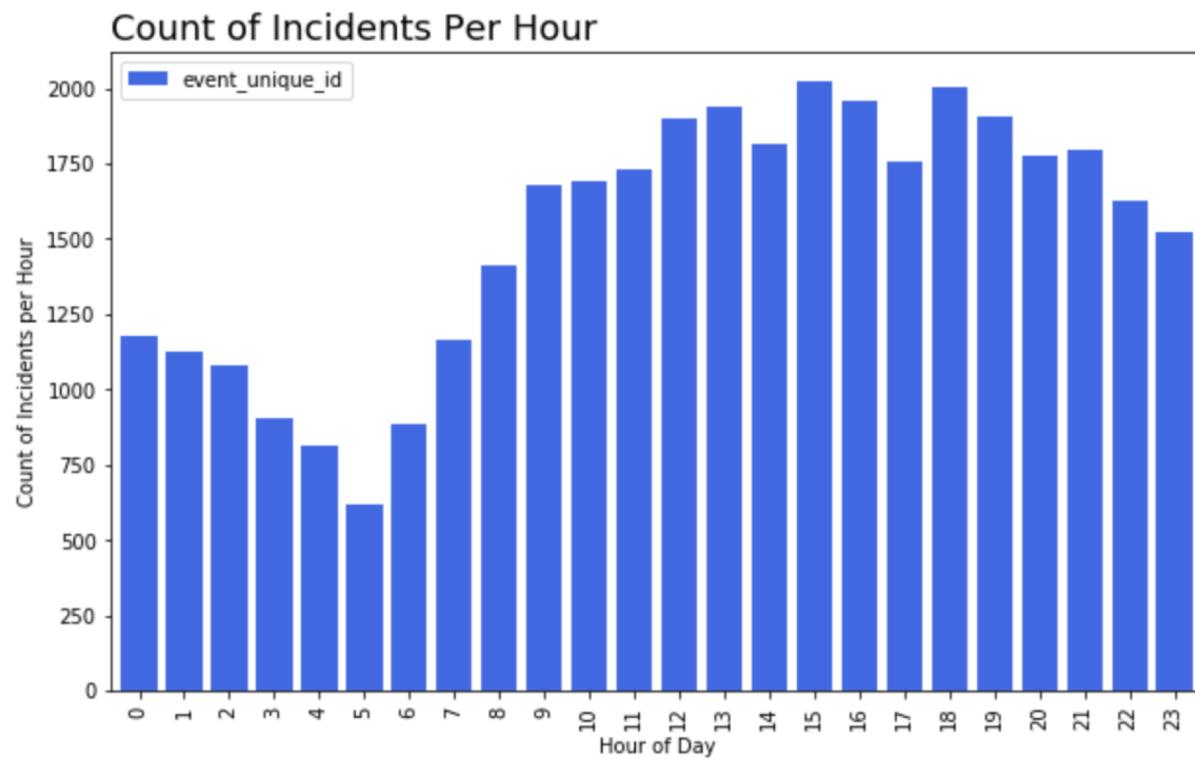
MCI	Division	Hood_ID	Neighbourhood	Lat	Long
Assault	D33	42	Banbury-Don Mills (42)	43.751801	-79.349564
Break and Enter	D32	35	Westminster-Branson (35)	43.781750	-79.446579
Robbery	D32	27	York University Heights (27)	43.786186	-79.474754
Break and Enter	D42	128	Agincourt South-Malvern West (128)	43.793003	-79.283165
Assault	D52	77	Waterfront Communities-The Island (77)	43.645374	-79.392059



## Top 5 incidents in 2018

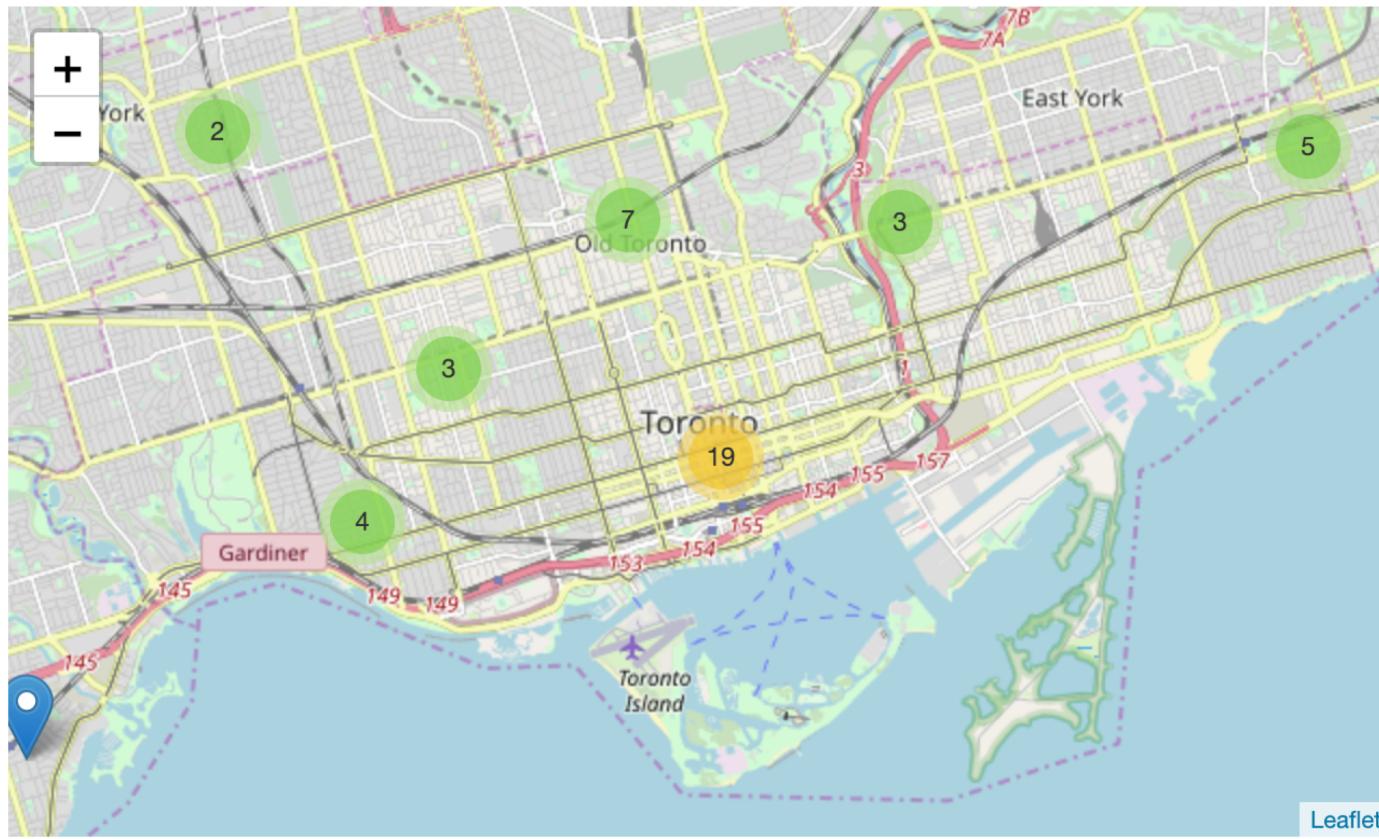
Assault	19327
Break and Enter	7551
Auto Theft	4674
Robbery	3527
Theft Over	1224

# Crime Incidents in Toronto



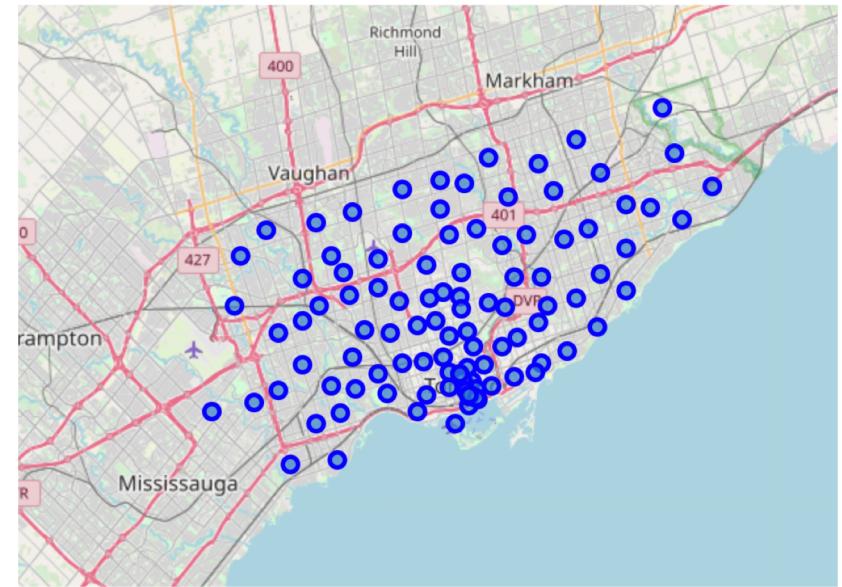
As shown we can see that there is a significant increase in the occurrence of crime after 5pm. Hence, this serves as a reminder to tourist to be more cautious when they are travelling in the night.

# Map of Crime Incidents in Toronto



# Neighborhoods in Toronto

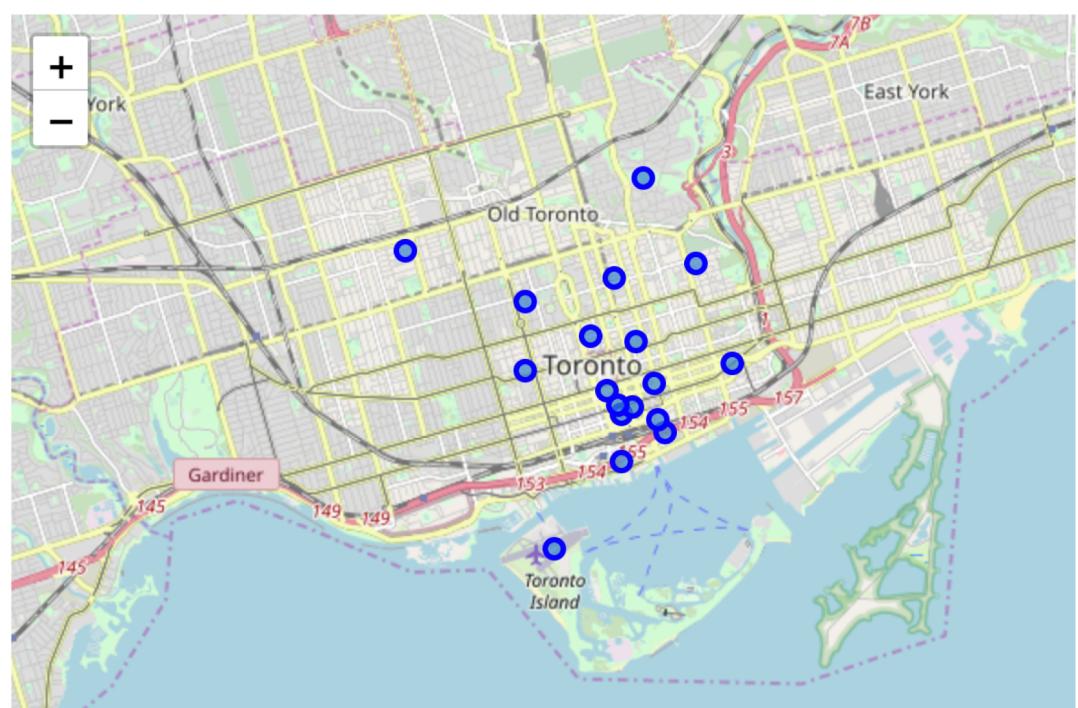
Postcode	Borough	Neighbourhood	Latitude	Longitude
M1B	Scarborough	Rouge, Malvern	43.806686	-79.194353
M1C	Scarborough	Highland Creek, Rouge Hill, Port Union	43.784535	-79.160497
M1E	Scarborough	Guildwood, Morningside, West Hill	43.763573	-79.188711
M1G	Scarborough	Woburn	43.770992	-79.216917
M1H	Scarborough	Cedarbrae	43.773136	-79.239476



The city of Toronto is made up of 140 neighbourhoods. Toronto is known to be made up of different ethnic groups and has many cultures.

# Neighborhoods in Downtown Toronto

Postcode	Borough	Neighbourhood	Latitude	Longitude
M4W	Downtown Toronto	Rosedale	43.679563	-79.377529
M4X	Downtown Toronto	Cabbagetown, St. James Town	43.667967	-79.367675
M4Y	Downtown Toronto	Church and Wellesley	43.665860	-79.383160
M5A	Downtown Toronto	Harbourfront, Regent Park	43.654260	-79.360636
M5B	Downtown Toronto	Ryerson, Garden District	43.657162	-79.378937



# Cluster Analysis of Downtown Toronto

\*\*\*Adelaide, King, Richmond\*\*\*

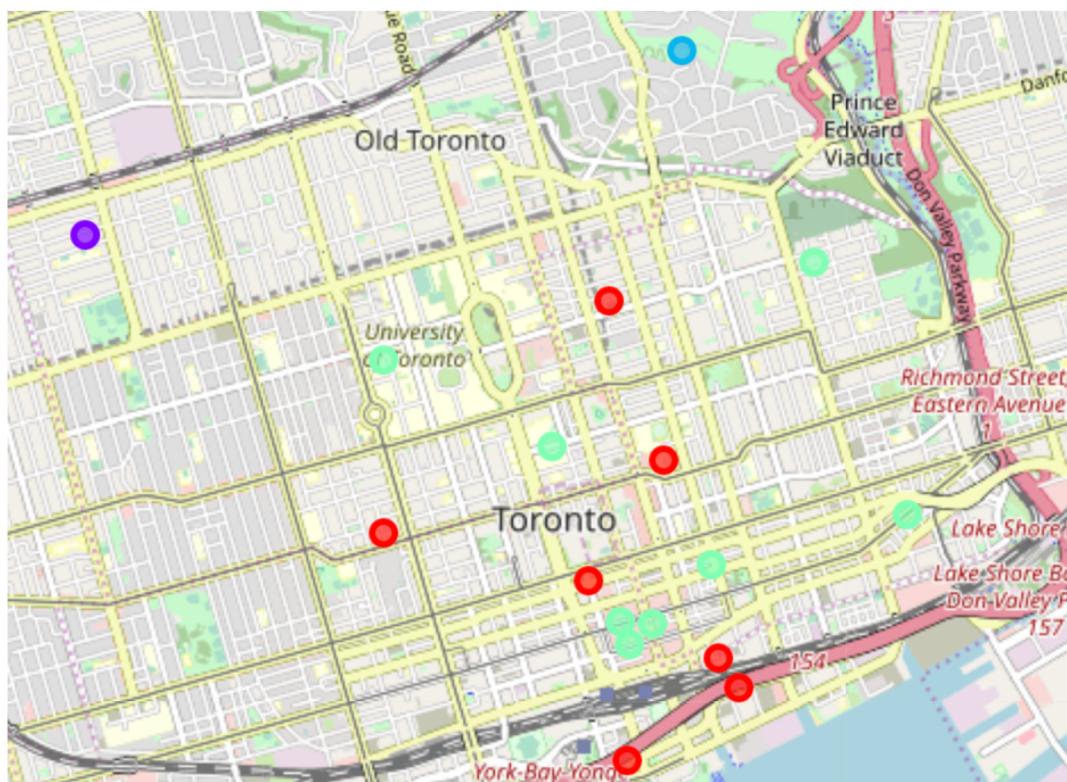
	venue	frequency
0	Steakhouse	0.10
1	Café	0.10
2	Asian Restaurant	0.07
3	Hotel	0.07
4	Gastropub	0.03

Neighbourhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Adelaide, King, Richmond	Steakhouse	Café	Asian Restaurant	Hotel	Seafood Restaurant
Berczy Park	Farmers Market	Café	Seafood Restaurant	Beer Bar	Cocktail Bar
CN Tower, Bathurst Quay, Island airport, Harbo...	Airport Lounge	Airport Terminal	Harbor / Marina	Sculpture Garden	Airport Food Court
Cabbagetown, St. James Town	Coffee Shop	Café	Italian Restaurant	Bakery	Restaurant
Central Bay Street	Coffee Shop	Bubble Tea Shop	Spa	Italian Restaurant	Café

\*\*\*Berczy Park\*\*\*

	venue	frequency
0	Café	0.07
1	Seafood Restaurant	0.07
2	Farmers Market	0.07
3	Cocktail Bar	0.07
4	Beer Bar	0.07

# Map clusters based on similarities of most frequented venues



# Conclusion

We have analyzed the top crimes that have occurred in Toronto in 2018. This gives the user advice on the type of incidents that occur and the time at which they should be more cautious.

Furthermore, we looked at how the neighbourhood of Downtown Toronto was clustered based on their most frequented venues. This provides the user with suggestion on what can be found and is popular with the people who frequent the location.

In conclusion, this aims to provide tourist with tips and guides on where and when to stay cautious when travelling.